

## PATENT ABSTRACTS OF JAPAN

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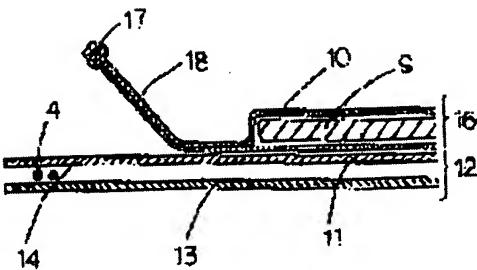
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## (54) THROWAWAY DIAPER OF PANTS TYPE

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To prevent a side flapping part from becoming stuffy and to provide a comfortable touch for a wearer by making an inner sheet which is composed of sheets made from non-woven fabric contain hydrophilic fibers of a certain % by weight.

**SOLUTION:** The absorptive main body 16 of the throwaway diaper consists of a top sheet 10 that is permeable, a back sheet 11 that is impermeable and an absorber 9 which is arranged between the two sheets. An outer covering 12 consists of a sheet 13 of outer layer that is made from non-woven fabric and a sheet 14 of inner layer that is made from non-woven fabric which is layered on the outer sheet 13. Between the outer sheet 13 that is around the opening for leg and the sheet of inner layer, elastic part 4 for the opening for leg is arranged. As the sheet 14 of inner layer should be permeable so as to absorb sweats of an user, it is made from non-woven fabric that contains 3-60% of hydrophilic fibers. The outer sheet 13 is made from gas permeable and water impermeable non-woven fabric in order to prevent itself from being steamed and to stop a leakage.



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**CLAIMS**

[Claim(s)]

[Claim 1] The absorptivity body which consists of the top sheet of liquid permeability, a backsheet of liquid impermeability, and an absorber arranged among both [ these ] sheets, Said absorptivity body is joined, surround the circumference of the waist from a wearer's antinode at the time of wear, and it consists of a sheathing member which applies and holds said absorptivity body to a wearer. In the trousers mold usage \*\*\*\* diaper with which the edges-on-both-sides section at the time which faces was joined, circumference opening of the waist and circumference opening of a foot of a pair were formed, and the flexible elastic member has been arranged along with said opening the past time of said sheathing member, and later self -- Said sheathing member is a trousers mold usage \*\*\*\* diaper characterized by consisting of a inner layer sheet which consists of an outer layer sheet which consists of a nonwoven fabric sheet, and a nonwoven fabric sheet by which the laminating was carried out to the outer layer sheet, and said inner layer sheet containing hydrophilic fiber three to 60% of the weight.

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

## [0001]

[Field of the Invention] This invention relates to the usage \*\*\*\* diaper currently beforehand formed in the trousers mold.

## [0002]

[Description of the Prior Art] Conventionally, junction immobilization of the part which is equivalent to the regio lateralis on either side as a usage \*\*\*\* diaper in the side flap of the diaper of a flat type which is indicated by JP,57-77304,A, for example at the time of wear is carried out beforehand, and the so-called trousers mold diaper which prepared circumference opening of the waist and circumference opening of a foot is proposed. In such a trousers mold usage \*\*\*\* diaper, opening of the circumference of both guide pegs, circumference opening of the waist, and in order to raise the flattery nature and fit nature of a diaper to a wearing person to the circumference both-sides section of the waist further, flexible elasticity is given, for example, as indicated by JP,3-16920,U, JP,4-289201,A, JP,4-166150,A, and JP,4-289201,A. Attachment and detachment by the wearer are possible for such a trousers mold usage \*\*\*\* diaper, and need has been growing also as objects for an adult, such as a stage of a diaper detached building of a small child, or an incontinentia person.

[0003] However, since the whole diaper surface is covered by the liquid impermeable backseat, MURE arises and the diaper of these existing gives a wearer displeasure. since the backseat of liquid impermeability and the top sheet of liquid permeability stick especially the side flap section equivalent to a wearer's lumbar part, it is put together and it is formed, the sweat the wearer sweated is a good feeling of wear with which the bank and the skin are not moist between the skin and a diaper front face, without being absorbed -- being the so-called -- it is inferior to admiration entirely. For this reason, the work which uses the moisture permeability film represented by porosity polyethylene as a backseat of liquid impermeability is carried out. The effectiveness is slight although amelioration is carried out for some MURE by this. Moreover, preparing an air hole in the liquid impermeable backseat of the circumference both-sides section of the waist, i.e., the side flap section, as indicated by JP,3-162854,A is proposed. if a wearer sweats in the part which hits the field to which the effectiveness shows up only, it has it although some amelioration is carried out, and the film is not puncturing this, either in large quantities -- moisture -- between the skin and diaper front faces -- the bank -- it is inferior to admiration entirely.

[0004] By using a hydrophilic sheet for the side which the above-mentioned technical problem is solved, and the circumference both-sides section of the waist, i.e., the side flap section, is formed with a permeability sheet, and contacts the skin, the purpose of this invention prevents MURE of the side flap section, keeps the humidity in a diaper comfortable for a wearer, and is to offer the trousers mold usage \*\*\*\* diaper which has a very good feeling of wear.

## [0005]

[Problem(s) to be Solved by the Invention] The top sheet of liquid permeability [ this invention ], and the backseat of liquid impermeability, Said absorptivity body is joined to the absorptivity body which consists of an absorber arranged among both [ these ] sheets. Surround the circumference of the waist from a wearer's antinode at the time of wear, and it consists of a sheathing member which applies and holds said absorptivity body to a wearer. In the trousers mold usage \*\*\*\* diaper with which the edges-on-both-sides section at the time which faces was joined, circumference opening of the waist and circumference opening of a foot of a pair were formed, and the flexible elastic member has been arranged along with said opening the past time of said sheathing member, and later self -- Said sheathing member consists of a inner layer sheet which consists of an outer layer sheet which consists of a nonwoven fabric sheet, and a nonwoven fabric sheet by which the laminating was carried out to the outer layer sheet, and consists in the trousers mold usage \*\*\*\* diaper characterized by said inner layer sheet containing hydrophilic fiber three to 60% of the weight.

## [0006]

[Embodiment of the Invention] The trousers mold usage \*\*\*\* diaper of this invention holds an absorptivity body, and consists of the outer layer sheet and inner layer sheet in which the sheathing member which forms trousers was formed with the nonwoven fabric, and a inner layer sheet contains hydrophilic fiber. By making it such a configuration, the trousers mold usage \*\*\*\* diaper of this invention can do \*\* layer sheet which prevents effectively \*\* which accepts it by the circumference flank of the waist, i.e., the side flap section, and has a very good feeling of wear.

[0007] The nonwoven fabric of liquid permeability with which the top sheet of liquid permeability used in this invention consists of a synthetic fiber which used polyester, polypropylene, polyethylene, other thermoplastics, etc. as the raw material, and textile fabrics are used. Moreover, a natural fiber is sufficient and it can manufacture from the ingredient of large range, such as combination of a synthetic fiber and a natural fiber. Anyway, since a surface sheet is a part in contact with the direct skin, it is soft, the touch should be just good, and it should just be dipping nature.

[0008] The backseat of liquid impermeability used in this invention consists of the material which has stuck a nonwoven fabric or textile fabrics on liquid impermeable films, such as polyethylene, and a liquid impermeable film and a nonwoven fabric with leakproofness, textile fabrics, etc., there is especially no limit and the moisture in an absorber should not just ooze out on the diaper outside. Moreover, in order to give a blanket-like appearance, embossing processing may be carried out at the shape of a pattern, or lusterless finishing may be carried out further. Moreover, when using a film, though it is liquid impermeability, the well-known moisture permeability film which makes only steam penetrate may be used, and it is desirable from the point of MURE prevention. Moreover, in order to make fit nature to a wearer you may be an elastic material and the material by which the elasticity nonwoven fabric etc. was stuck and set is [ use of a good, polyurethane system film, a natural rubber sheet, a foaming sheet, etc. may be possible, and ] sufficient further.

[0009] The nonwoven fabric and textile fabrics with which the sheathing member used in this invention consists of a synthetic fiber which used polyester, polypropylene, polyethylene, other thermoplastics, etc. as the raw material are used. As for the outer layer sheet arranged among sheathing members on the outside of a diaper, it is desirable that it is the permeability nonwoven fabric which consists of a water-repellent synthetic fiber. On the other hand, since the inner layer sheet arranged inside needs to be a hydrophilic liquid permeability nonwoven fabric, it contains hydrophilic fiber three to 60% of the weight. The hydrophilic fiber used by this invention has desirable nature nature fiber which has especially absorptivity in synthetic fibers, such as polyester and polyethylene, although natural fibers, such as fiber which carried out hydrophilic processing, an acrylic-acid nature polymer, absorptivity fiber of a starch system, rayon, and a cotton, are desirable. A wearer's sweat cannot be absorbed as hydrophilic fiber is the following about 3 % of the weight, but moisture accumulates between the skin and a inner layer sheet, and it is inferior to admiration entirely. Conversely, if hydrophilic fiber is contained exceeding 60 % of the weight, in order for the inner layer sheet itself to hold moisture so much, it is not emitted on the outside of a diaper and is inferior to admiration entirely.

[0010] The absorber used in this invention is formed with the curdy pulp and super-absorbent polymer matter, a hydrophilic sheet, etc., and especially if it has the property of absorptivity, it will not receive a limit. The absorber used in this invention is made from the well-known absorptivity ingredient with which the absorptivity goods of a conventional usage \*\*\*\* diaper and conventional others are usually used. That is, it is formed from the monolayer or the multilayer mat which consists of absorptivity fiber, such as curdy pulp and rayon, and is arranged further covered with the hydrophilic sheet, and the super-absorbent polymer matter is arranged in each mat at homogeneity, and is arranged in the shape of a layer between mixing or each mat. Moreover, after the absorber mixed by homogeneity in the super-absorbent polymer matter mixes 3 - 60% of the weight of the heat welding nature matter to curdy pulp, thermocompression bonding may be carried out or only the super-absorbent polymer matter may be covered with the hydrophilic sheet.

[0011] It is the thing of 5mm or less of fiber towns obtained as curdy pulp by \*\*\*\*(ing) a chemical pulp sheet, a recycled pulp sheet, and a mechanical pulp sheet with a grinder. As a pulp raw material, not only a needle-leaf tree but a broad-leaved tree, straw, a bamboo, a kenaf, etc. are applied. Although the amount of this pulp used differs by whether it uses independently for example, or two or more laminatings are carried out and it uses with the target absorber, or other absorbers are used together, generally it is set to 50-400g/m<sup>2</sup>.

[0012] As super-absorbent polymer matter, the thing of a starch system, a cellulose system, and a synthetic polymer system is raised.

Namely, the saponification object of a starch-acrylic-acid (salt) graft polymer and a starch-ethyl-acrylate graft copolymer, The saponification object of a starch-METAKURU acid methyl graft copolymer, the saponification object of a starch-acrylonitrile graft copolymer, The saponification object of a starch-acrylamide graft copolymer, the saponification object of a starch-acrylonitrile-2-acrylamido-2-methyl-propane-sulfonic-acid graft copolymer, They are the polyethylene oxide over which the bridge was constructed with the acrylic-acid (salt) polymer and the acrylic acid, the bridge formation object of a sodium carboxymethyl cellulose, a polyvinyl alcohol-maleic-anhydride reactant bridge formation object, etc.

[0013] The urine, the body fluid, and water of 20 times or more of a self-weight are absorbed among these, and the thing of a sodium polyacrylate system is the most suitable from the point of absorptivity ability. the curdy pulp 100 weight section which dried the loadings of the super-absorbent polymer matter -- receiving -- the 10 - 500 weight section -- it is the 15 - 300 weight section preferably, and the super-absorbent polymer matter of this amount is substantially distributed over curdy pulp at homogeneity. When the super-absorbent polymer matter absorbed water and swells, a mutual interference can minimize the particle and it contacts continuously, and there are few permeability barriers and they carry out transparency water absorption of urine or the body fluid in the direction of a three dimension.

[0014] The configurations of said absorber should just be configurations in which there is especially no limit and length from the crotch to the cuff is fitted, such as a sandglass mold, a \*\* type, and a T character mold. In order to raise a feeling of wear generally, it is desirable that it is especially the configuration which narrowed the length-from-the-crotch-to-the-cuff sections, such as a sandglass mold and a T character mold.

[0015] A flexible elastic member is arranged in the state of expanding at circumference opening of a foot, circumference opening of the waist, etc., and adhesion immobilization is carried out with hot melt adhesive. As for a flexible elastic member, an urethane film, urethane yarn, urethane foam, yarn rubber, etc. are used.

[0016]

[Example] Hereafter, although a drawing explains concretely the trousers mold usage \*\*\*\* diaper of this invention, this invention is not limited to these. Drawing 1 is the perspective view showing the trousers mold usage \*\*\*\* diaper of this invention. drawing 1 -- setting -- a trousers mold usage \*\*\*\* diaper -- past time -- 5 and later self -- time -- 6 -- facing -- edges on both sides -- a side seam 7 -- adhesion closing -- it is carried out, the circumference opening 1 of the waist and the circumference opening 2 of a foot of a pair are formed, and the flexible elastic member is arranged along with each opening. furthermore, past time -- 5 and later self -- time -- 6 -- two or more circumference of the waist flexible elastic members 8 are arranged at the circumference part of the waist.

[0017] Drawing 2 is the development view showing the condition of having carried out release expansion of the side seam 7 of the trousers mold usage \*\*\*\* diaper of drawing 1. In drawing 2, a usage \*\*\*\* diaper consists of an absorptivity body 16 and a sheathing member 12, holding this, the absorptivity body 16 is joined by the central field in alignment with the longitudinal direction of the sheathing member 12, and the field where the absorptivity body 16 of the sheathing member 12 does not exist serves as the side flap section 15. Moreover, the circumference opening of the waist flexible elastic member 3 is arranged at the circumference opening 1 of the waist of the sheathing member 12, the circumference opening of foot flexible elastic member 4 is arranged at the circumference opening 2 of a foot, and the circumference of the waist flexible elastic member 8 is arranged further at the circumference section of the waist.

[0018] Drawing 3 is the sectional view showing the condition of having cut the trousers mold usage \*\*\*\* diaper shown in drawing 2 along with the X-X' line. In drawing 3, the usage \*\*\*\* diaper consists of an absorptivity body 16 and a sheathing member 12, and the absorptivity body 16 consists of absorbers 9 arranged between the top sheet 10 of liquid permeability, the backseat 11 of liquid impermeability, and both [ these ] sheets, the flexible elastic member 17 is arranged at the side edge section to which the top sheet 10 and the backseat 11 are joined, and the solid gathers 18 are formed. Furthermore, the sheathing member 12 consists of an outer layer sheet 13 which consists of a nonwoven fabric, and a inner layer sheet 14 which consists of a nonwoven fabric by which the laminating was carried out to the outer layer sheet 13, and the circumference opening of foot flexible elastic member 4 is arranged between the outer layer sheet 13 and the inner layer sheet 14. Moreover, in order for the inner layer sheet 14 to absorb a wearer's sweat, it is necessary to be a hydrophilic property, it is formed with the nonwoven fabric which contains hydrophilic fiber 3 to 60%, and the outer layer sheet 13 is formed with the permeability water repellence nonwoven fabric, in order to prevent \*\*\*\* and to prevent the exudation of liquid.

[0019] There is especially no limit that the manufacture approach of the outer layer sheet 13 and the inner layer sheet 14 which constitutes the sheathing member 12 forms a web by the wet paper-making method, the card method, the air RAID method, the span bond method, etc., and should just sheet-ize it to homogeneity by the heat embossing method, the adhesives applying method, the high-pressure water-jet art, the needle punch method, etc.

[0020] Although the basis weight of the inner layer sheet 14 is the matter which can be determined as arbitration, its 10 - 100 g/m<sup>2</sup> is desirable. Since the basis weight of a nonwoven fabric is too thin in less than two 10 g/m, the stain broth of the paste for lamination arises. Conversely, since the nonwoven fabric obtained when 100 g/m<sup>2</sup> was exceeded becomes hard, it is remarkably inferior in a feeling of wearing.

[0021] The trousers mold usage \*\*\*\* diaper of this invention which has the outer layer member 12 of such structure In order that the inner layer sheet 14 which is a hydrophilic property may absorb moderately the sweat the wearer sweated especially in the side flap section 15, Since the moisture which moisture did not accumulate between the wearer and the diaper front face, and the inner layer sheet 14 absorbed further is emitted out of a diaper through the outer layer sheet 13, moisture absorption of the sweat the wearer sweated within the diaper, and emission are always performed, and it makes it possible to keep the humidity in a diaper comfortable.

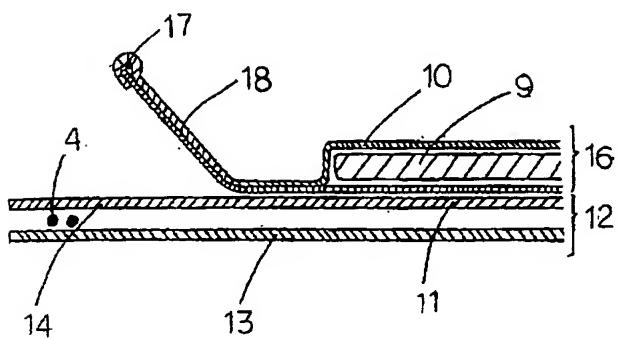
[0022]

[Effect of the Invention] Since the trousers mold usage \*\*\*\* diaper of this invention is formed from the outer layer sheet with which the sheathing member which forms trousers consists of a inner layer sheet which consists of a hydrophilic nonwoven fabric, and a permeability water repellence nonwoven fabric, can absorb a wearer's sweat efficiently and can be made to emit outside, \*\*\*\* is prevented and it has the outstanding feeling of wear.

[0023]

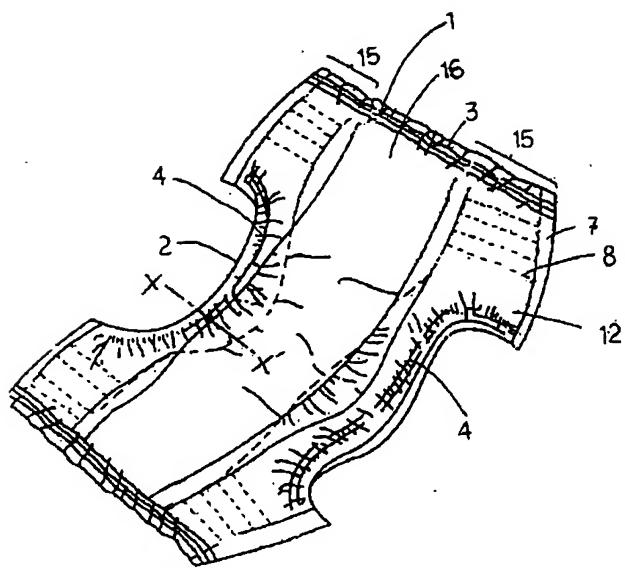
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Drawing selection Representative drawing



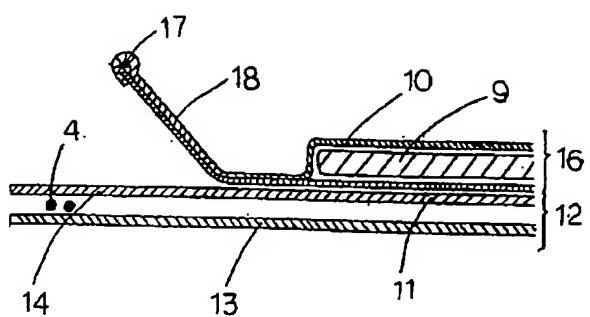
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Drawing selection drawing 2



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Drawing selection drawing 3



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